AL.2.2003-103
c2

Management Information Reporting 2000-01 Data Analysis

For Special Education, English as a Second Language (ESL), Early Literacy Initiative (ELI), and Technology Integration Funding (TIF)

January 2003

Alberta
LEARNING

ALBERTA LEARNING CATALOGING IN PUBLICATION DATA

Alberta. Alberta Learning. System Improvement and Reporting Division. Management information reporting data analysis for Special Education, English as a Second Language (ESL), Early Literacy Initiative (ELI), and Technology Integration Funding (TIF).

ISBN 0-7785-1371-8

1. Educational evaluation. 2. Educational tests and measurements – Alberta. 3. Education – Alberta – Statistics. 4. Educational innovation – Alberta 5. Students – Rating of – Alberta. I. Title.

LB2822.84.C2.A333 2002

For further information, contact

Alberta Learning
System Improvement and Reporting Division
9th floor, Commerce Place
10155 – 102 Street
Edmonton, Alberta T5J 4L5

Telephone: (780) 422-8671
Toll free in Alberta by dialing 310-0000
Fax: (780) 422-8345
Email: sig@learning.gov.ab.ca

This document is intended primarily for:
System and school administrators
Alberta Learning managers

And may be of interest to:
Individuals interested in school improvement

Copyright © 2003, the Crown in Right of Alberta, as represented by the Minister of Learning. Permission is given by the copyright owner to reproduce this document for educational purposes and on a non-profit basis.

Table of Contents

Executive Summary 1
Introduction 2
Special Education 3
Gifted and Talented Students and those with Mild or Moderate Disabling Conditions 11
English as a Second Language Funding 21
Early Literacy Initiative 25
Technology Integration Funding 28

List of Tables

Table 1. Number of Funded Students and Total Number of Funded Students with Severe Disabilities for Grades 1-12 3
Table 2. Total Number of Students by Severe Disability Code 4
Table 3. Total Expenses for Students with Severe Disabilities within Grades 1-12 6
Table 4. Total Percentages and Numbers of Certificated and Non-Certificated Staff for Students with Severe Disabilities 6
Table 5. Costs per Student with Severe Disabilities by Province, Edmonton and Calgary Jurisdictions, and Excluding the Edmonton & Calgary Jurisdictions 7
Table 6. Number and Percentage of Grade 3 Students with Severe Disabilities Scoring Excellent, Acceptable, and Below Acceptable on the Language Arts PAT 9
Table 7. Number and Percentage of Grade 6 Students with Severe Disabilities Scoring Excellent, Acceptable, and Below Acceptable on the Language Arts PAT 9
Table 8. Number and Percentage of Grade 9 Students with Severe Disabilities Scoring Excellent, Acceptable, and Below Acceptable on the Language Arts PAT 9
Table 9. Average Language Arts PAT 2000/2001 Marks for Students with Severe Disabilities in Grades 3, 6, & 9 9
Table 10. Total Number of Gifted Students and those with Mild/Moderate Disabilities for Grades 1-12 11
Table 11. Total Number of Students with a Mild/Moderate Disability by Disability Code 13
Table 12. Total Staff Expenses for Gifted Students and those with Mild/Moderate Disabilities within Grades 1-12 15
Table 13. Provincial Costs per Gifted Student and those with Mild/Moderate Disabilities 16
Table 14. Total Percentages and Numbers of Certificated and Non-Certificated Staff for Gifted Students and those with Mild/Moderate Disabilities 16
Table 15. Number and Percentage of Grade 3 Students with Mild/Moderate Disabilities Scoring Excellent, Acceptable, and Below Acceptable on the Language Arts PAT 18
Table 16. Number and Percentage of Grade 6 Students with Mild/Moderate Disabilities Scoring Excellent, Acceptable, and Below Acceptable on the Language Arts PAT 18
Table 17. Number and Percentage of Grade 9 Students with Mild/Moderate Disabilities Scoring Excellent, Acceptable, and Below Acceptable on the Language Arts PAT 18
Table 18. Average Language Arts PAT 2000/2001 Scores for Students with Mild/Moderate Disabilities in Grades 3, 6, & 9 19
Table 19. Total Number of Funded Students and Total Number of Funded ESL Students for Grades 1-12 21

Table 20. Total ESL Expenses and Cost per ESL Student within the Province 22
Table 21. Number and Percent of Grade 3 ESL Students Scoring Excellent, Acceptable, and Below Acceptable on the PATs 23
Table 22. Number and Percent of Grade 6 ESL Students Scoring Excellent, Acceptable, and Below Acceptable on the PATs 23
Table 23. Number of Grade 9 ESL Students Scoring Excellent, Acceptable, and Below Acceptable on the PATs 23
Table 24. Average PAT 2000/2001 Marks for ESL Students in Grades 3, 6, & 9 23
Table 25. Provincial ELI Enrolment in 1999/2000 & Number of Grade 3 ELI Students Writing the LA PAT in 2000/2001 25
Table 26. Expenses and ELI Enrolment Numbers for the ECS-Grade 2 Program 26
Table 27. Number of Grade 3 ELI Students Scoring Excellent, Acceptable, and Below Acceptable on the Language Arts PAT 26
Table 28. Total Number of Computers, Students, Student-to-Computer Ratio, Total Expenses, and Provincial Costs per Student 28
Table 29. Lowest to Highest Student-to-Computer Ratio 28
Table 30. Technology Integration Fund Comparisons – 1996-1998, 1998/99, 1999/00 and 2000/01 29

List of Figures

Figure 1: Percent of Students by Severe Disability Code by Geographic Location 4
Figure 2: Percent of Students with Severe Disabilities by Disability Code 5
Figure 3: Average Cost per Student with Severe Disabilities Within and Outside of the Edmonton & Calgary Jurisdictions 7
Figure 4: Percent of Expenses and FTE's by Geographic Location for Students with Severe Disabilities 8
Figure 5: PAT Outcomes by Grade – Severe LA (2000/2001) 10
Figure 6: PAT Outcomes by Grade – Severe LA (1999/2000) 10
Figure 7: Distribution of Gifted Students and those with Mild/Moderate Disabilities 12
Figure 8: Percent of Students by Mild/Moderate Disability Code by Geographic Location 14
Figure 9: Percent of Students with Mild/Moderate Disabilities by Disability Code 15
Figure 10: Percent of Expenses and FTE's by Geographic Location for Students with Mild/Moderate Disabilities 17
Figure 11: PAT Outcomes by Grade – Mild/Moderate LA (2000/2001) 19
Figure 12: PAT Outcomes by Grade – Mild/Moderate LA (1999/2000) 20
Figure 13: Percentage of ESL Students by Grant Program 22
Figure 14: Provincial Achievement Test Results for ESL Students 24
Figure 15: Provincial Achievement Test Results for Grade 3 ELI Students (2000/2001) 27

Executive Summary

This report is intended to stimulate inquiry into the achievement of special groups of students and model reporting to the public on these students' levels of achievement; a traditionally weak area of school board Annual Education Results Reports. The data provided herein provide provincial level comparators to data that may be compiled by school jurisdictions.

The analysis identified some important findings, including:

- incidence patterns of students with severe disabilities between the metropolitan boards and other jurisdictions demonstrates notable levels of variation (p. 4-5);
- the differential in the incidence of students coded as being gifted between the urban and other boards points to a potential need to review this program area (p. 12);
- data analysis of Grade 3 and 6/9 student achievement test results for students with severe disabilities and for those with mild/moderate disabling conditions may help identify strategies to strengthen intervention timing. (p. 8-10, p. 17-20);
- future directions are identified for clarifying Technology Integration Funding and Total Cost of Ownership data (p. 28-29), and;
- the report and underlying analysis provides some insight into how future Corporate Data Warehouse refinements might better meet the information and data analysis needs of the Ministry and our stakeholders especially with respect to building in more timely relational linkages between existing databases; and,
- most importantly, this report stimulates reflection on how we can optimize learning for students in special programs.

Introduction

Alberta school boards are required to include in their Annual Education Results Reports highlights of their progress and results over the past year on how student learning has been enhanced relative to specific provincial initiatives including:

- Students with special needs
- Early Literacy Initiative programs (ELI)
- English as a Second Language programs (ESL), and
- Technology Integration Funding (TIF), etc.

This report provides 2000-01 provincial level information, aggregated at the school jurisdiction level, on these programs using existing data in the Ministry's Corporate Data Warehouse, so that Alberta Learning and school boards may have reference points for analyzing program results. As such, this report supports the accountability relationships between Alberta Learning and Alberta school boards. The data presented in each section of this report is based on funded students within each instruction-based program.

Limitations and Delimitations

Data included in this report is delimited to the 62 school boards in Alberta to provide a common population. However, the range in funded enrolment figures for Grades 1 to 12 across Alberta's school jurisdictions is substantial. The smallest jurisdiction, the Northwest Francophone Education Region No. 1, reported a funded enrolment of 225 students, while the largest school jurisdiction, the Calgary School District No. 19, reported a funded enrolment of 91,421 students. In order to isolate the large influence that Edmonton and Calgary have on 'provincial' averages and obtain a better understanding of the results for the remaining jurisdictions, in select analyses where differences were pronounced and meaningful, separate calculations were performed for the metropolitan jurisdictions in Edmonton and Calgary and then for the remaining jurisdictions lying outside of the two metropolitan areas.

It should be noted that the data presented in Tables 1 and 2 of this document are based on the March, 2001 head count of students while the remaining tables on students with severe disabilities are based on the September, 2000 head count.

Coding of ELI students and students with mild/moderate disabilities and gifted students is not applied consistently between jurisdictions and this fact introduces additional variance in reporting and analyzing the data.

Special Education

Students Classified with Severe Disabilities

This section provides information on funded students with severe disabilities who were enrolled during the 2000/2001 school year. The data is based on a total of 41 public, 16 separate, and 5 francophone jurisdictions within the province of Alberta (N = 62).

Total Enrollment by Jurisdiction

The total number of funded students in 2000-01 served by Alberta school boards is 493,277. Table 1 shows that the average number of students per jurisdiction is 7,956. However, the standard deviation of approximately 15,163 is quite large. A considerable skew in the data is also present since the median is considerably smaller than the mean. Such an observation reflects the extensive influence that the Edmonton and Calgary jurisdictions have on the enrolment data. Overall, the total number of students with severe disabilities in the province is slightly over 10,000 or 2% with an average number of 163 students per jurisdiction.

Table 1. Number of Funded Students and Total Number of Funded Students with Severe Disabilities for Grades 1-12

	Total Number Of Students	Total Number of Students with Severe Disabilities	Percentage of Students With Severe Disabilities
Mean	7,956.1	163.0	2.2
Median	4,132.5	95.5	2.0
Std. Deviation	15,162.6	300.6	1.1
Minimum	225	1	0.4
Maximum	91,421	2,009	6.0
Sum	493,277	10,103	Overall 2.0%

The count of students is based on the March, 2001head count reported by school boards

Codes for Students with Severe Disabilities

A number of codes are used to classify and fund students with severe disabilities. The following disability codes are used for classifying students with severe disabilities:

Code 41 = Severe Mental Disability
Code 42 = Severe Emotional/Behavioural Disability
Code 43 = Severe Multiple Disability
Code 44 = Severe Physical or Medical Disability
Code 45 = Deafness
Code 46 = Blindness

Refer to the following website for a review of the definitions pertaining to each of the aforementioned codes provided within the Handbook for the Identification and Review of Students with Severe Disabilities (2001): http://www.learning.gov.ab.ca/publications/PublicationItem.asp?ID=360

The table below shows that in 2000-01 more than half (53.0%) of the total numbers of students with severe disabilities were diagnosed as having a severe emotional and/or behavioural disability. Since 1996/97, there has been a 67 percent increase in the incidence of students classified as having severe emotional/behavioural disabilities.

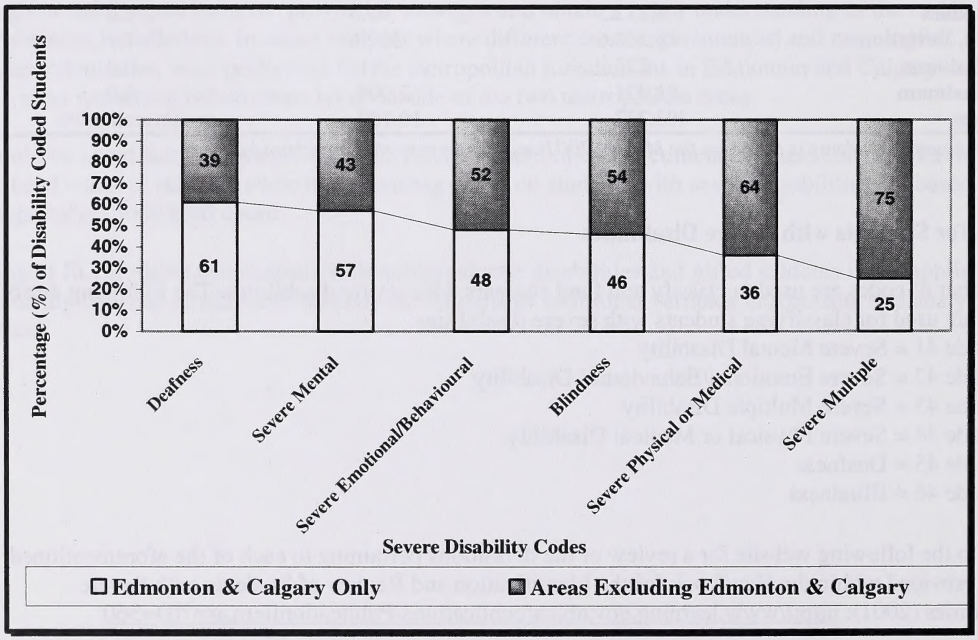
Table 2. Total Number of Students by Severe Disability Code

Severe Disability Codes	Number of Students	Percent Total
Severe Emotional/Behavioural Disability (code 42)	5,357.5	53.0
Severe Physical or Medical Disability (code 44)	2,547.5	25.2
Severe Multiple Disability (code 43)	1,170.5	11.6
Severe Mental Disability (code 41)	458.5	4.5
Deafness (code 45)	346.5	3.4
Blindness (code 46)	223.0	2.2
Total	**10,103.5**	

The count of students is based on the March, 2001head count

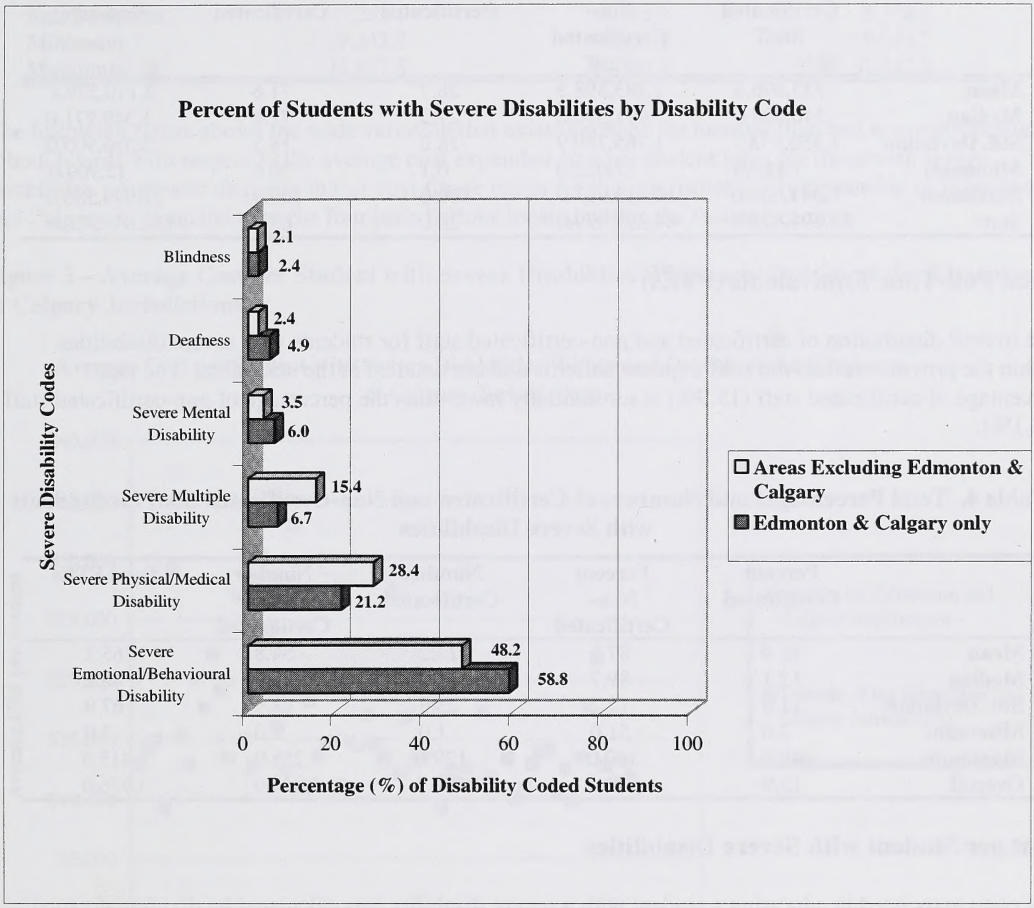
Figure 1 presents the breakdown between the percentage of students for each severe disability code in the Edmonton and Calgary jurisdictions compared to the areas outside of the two metropolitan areas. For example, 61% of the 346.5 students diagnosed as being deaf reside in the metropolitan areas, while 39% reside in areas outside of the two metropolitan centres.

Figure 1 – Percent of Students by Severe Disability Code by Geographic Location



The following figure presents the percent of students attributable to each type of disability code for the metropolitan areas and for boards outside of the metropolitan centres. For example, of all students with a severe disability in the metropolitan areas, 4.9% have a deafness disability. Similar to Figure 1, this data demonstrates notable variations by disability code, although if ranked by frequency the rankings are similar.

Figure 2



Staff Costs

Over the 2000/2001 school year, a total of $130,855,926 was spent for certificated and non-certificated staff services across the 62 jurisdictions for funded students with severe disabilities (refer to Table 3).

A variable of note, associated with the size of the jurisdiction, is that of the proportion of total expenses allocated to certificated and non-certificated staff. Certificated and non-certificated expenses represent the sum of salaries and benefits. Certificated costs include salaries paid to those employees holding positions for which a valid Alberta Teaching Certificate or its equivalent as granted by Alberta Learning is required. Non-certificated costs include salaries paid to those employees in other professional and support positions that do not require an Alberta Teaching Certificate.

The following table presents the breakdown of certificated expenses to non-certificated expenses. Overall, 28 percent of the total special education expenses for students with severe disabilities are designated for certificated staff, while 65% of the expenses are allocated for non-certificated expenses.

Table 3. Total Expenses for Students with Severe Disabilities within Grades 1-12

	Expenses Certificated Staff	Expenses Non-Certificated Staff	Percent Certificated	Percent Non-Certificated	Total Expenses
Mean	733,896.6	1,383,598.3	28.7	71.6	2,110,579.4
Median	346,088.0	971,370.0	27.2	71.6	1,349,971.0
Std. Deviation	1,350,938.7	1,765,789.9	18.0	18.5	3,336,905.0
Minimum	1,119.0	27,022.0	0.1	30.6	12,909.0
Maximum	7,541,660.0	10,818,923.0	100.0	100.0	21,949,580.0
Sum	36,694,828.0	84,399,499.0	28.0	65.0	130,855,926.0

Total Full-Time Equivalents (FTEs)

The overall distribution of certificated and non-certificated staff for students with severe disabilities within the province reflect the staff expense patterns and are detailed in the next table. The total percentage of certificated staff (15.9%) is substantially lower than the percentage of non-certificated staff (84.1%).

Table 4. Total Percentages and Numbers of Certificated and Non-Certificated Staff for Students with Severe Disabilities

	Percent Certificated	Percent Non-Certificated	Number Certificated	Number Non-Certificated	Total FTEs
Mean	15.9	87.5	13.2	54.8	65.2
Median	12.1	89.7	6.4	40.8	46.2
Std. Deviation	11.6	12.2	25.3	48.9	67.9
Minimum	2.0	51.0	1.0	1.0	2.0
Maximum	49.0	100.0	129.0	286.0	415.0
Overall	15.9	84.1	632.0	3,344.0	3,976.0

Cost per Student with Severe Disabilities

The costs associated in educating a student with a severe disability was calculated by dividing the total expenses by the total number of students with a severe disability within a jurisdiction. This ratio was calculated for each jurisdiction within the province. The following table provides information on the costs of educating students with severe disabilities within the province, as well as the costs incurred per student within the Edmonton and Calgary jurisdictions and those jurisdictions situated outside of the two metropolitan areas. The results indicate that some school jurisdictions lying outside of Edmonton and Calgary spend more for educating students with severe disabilities ($15,559.80) in comparison to the two major centers ($11,896.60).

Table 5. Costs per Student with Severe Disabilities by Province, Edmonton and Calgary Jurisdictions, and Excluding the Edmonton & Calgary Jurisdictions

	Provincial Costs	Edmonton & Calgary Jurisdictions	Excluding the Edmonton & Calgary Jurisdictions
Mean	15,323.5	11,896.6	15,559.8
Median	13,492.9	11,684.2	13,902.1
Std. Deviation	5,263.1	1,018.3	5,358.1
Minimum	9,243.7	10,928.3	9,243.7
Maximum	32,847.5	13,289.9	32,847.5

The following figure shows the wide variation that exists between the metropolitan and non-metropolitan school boards with respect to the average cost expended on a per student basis for those with severe disabilities. A greater disparity in this cost figure exists for those jurisdictions lying outside of Edmonton and Calgary in comparison to the four jurisdictions located within the two city centres.

Figure 3 – Average Cost per Student with Severe Disabilities Within and Outside of the Edmonton & Calgary Jurisdictions

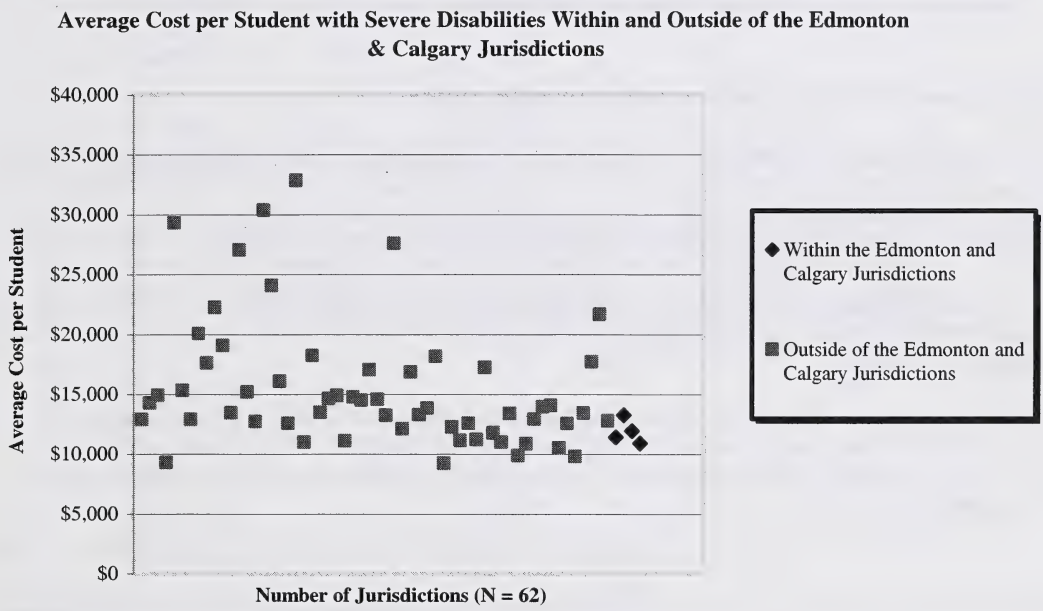
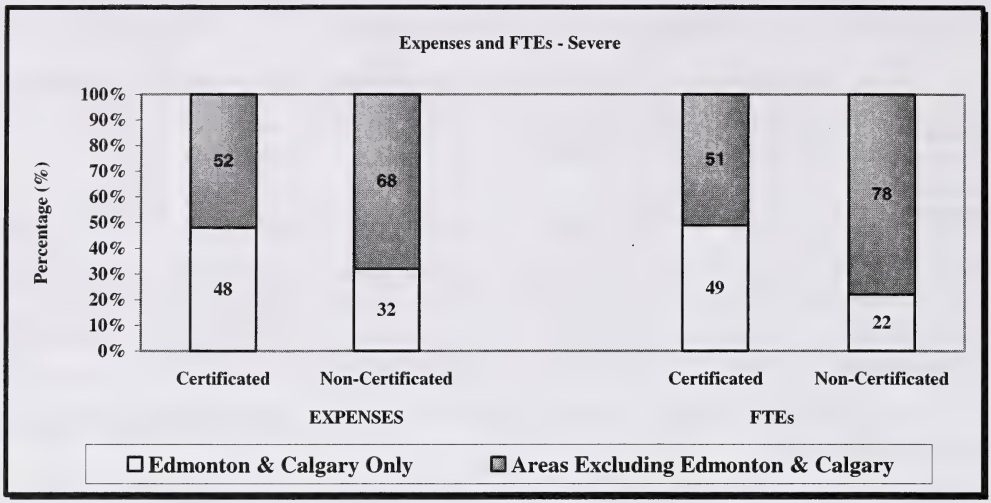


Figure 4 presents the relative proportion of certificated and non-certificated staff. Note the jurisdictions lying outside of the metropolitan areas rely more heavily on non-certificated staff.

Figure 4 - Percent of Expenses and Full-Time Equivalents (FTE's) by Geographic Location for Students with Severe Disabilities



Achievement Results for Students with Severe Disabilities

Achievement results for students with severe disabilities were analyzed based on information from the Language Arts Provincial Achievement Test (PAT). The data is based on jurisdiction-level aggregate average PAT scores. In calculating the achievement results, it should be noted that the data could not be broken down by the codes used to classify students with severe disabilities.

The following tables provide information on the number and percentage of funded students with severe disabilities who wrote and scored excellent, acceptable, and below acceptable on the Language Arts PAT for grades 3, 6, and 9.

The participation rates for students with severe disabilities writing the Grade 3, 6 and 9 Language Arts PAT in 2000/2001 was found to be 52.5%, 53.3%, and 33.3% respectively[1]. It should be noted the participation rates are reported on both funded and non-funded students with severe disabilities writing the Language Arts PAT.

[1] Based on information provided by the Learner Assessment Branch

Table 6. Number and Percentage of Grade 3 Students with Severe Disabilities Scoring Excellent, Acceptable, and Below Acceptable on the Language Arts PAT (N = 445)

	Excellent	Acceptable	Below Acceptable	Total Assessed
Mean	1.9	6.7	3.0	8.7
Std. Deviation	1.9	8.9	4.2	12.9
Minimum	1.0	1.0	1.0	1.0
Maximum	9.0	47.0	21.0	71.0
Sum	43.0	315.0	87.0	445.0
Percentage	**9.7**	**80.4***	**19.6**	

**The 'Acceptable' Category includes students who achieved 'Excellent'*

Table 7. Number and Percentage of Grade 6 Students with Severe Disabilities Scoring Excellent, Acceptable, and Below Acceptable on the Language Arts PAT (N = 499)

	Excellent	Acceptable	Below Acceptable	Total Assessed
Mean	1.4	5.7	4.1	9.2
Std. Deviation	1.1	7.6	6.1	13.7
Minimum	1.0	1.0	1.0	1.0
Maximum	5.0	43.0	31.0	74.0
Sum	27.0	294.0	178.0	499.0
Percentage	**5.4**	**64.3***	**35.7**	

**The 'Acceptable' Category includes students who achieved 'Excellent'*

Table 8. Number and Percentage of Grade 9 Students with Severe Disabilities Scoring Excellent, Acceptable, and Below Acceptable on the Language Arts PAT (N = 275)

	Excellent	Acceptable	Below Acceptable	Total Assessed
Mean	1.1	3.9	3.0	5.9
Std. Deviation	0.4	4.1	3.1	6.7
Minimum	1.0	1.0	1.0	1.0
Maximum	2.0	23.0	16.0	40.0
Sum	8.0	166.0	101.0	275.0
Percentage	**2.9**	**63.3***	**36.7**	

**The 'Acceptable' Category includes students who achieved 'Excellent'*

Table 9 displays the average Language Arts PAT 2000/2001 marks for students with severe disabilities in grades 3, 6, and 9. The results show that there is a slight but steady decline in the average marks achieved from Grade 3 to Grade 9, however, between grade comparisons are not meaningful in the absence of test equated statistics. The data is presented here for within grade analysis by school jurisdiction staff.

Table 9. Average Language Arts PAT 2000/2001 Marks for Students with Severe Disabilities in Grades 3, 6, & 9

Marks	Grade 3	Grade 6	Grade 9
Mean	65.0	58.0	56.6
Std. Deviation	9.7	8.0	8.9
Minimum	42.0	31.0	34.0
Maximum	95.0	76.0	77.0

The following figure illustrates the percentage of students with severe disabilities scoring excellent, acceptable, and below acceptable on the Language Arts PAT within grades 3, 6, and 9. The results show that there is a relatively high proportion of grade nine students scoring within the 'Below Acceptable' category (36.7%) while only a small percentage of these students scored within the "Excellent' category (2.9%). There is little variation in the proportion of students scoring 'Acceptable' across the three grade levels; however, the trend towards lower achievement from grade 3 to grade 6 is noteworthy.

Figure 5

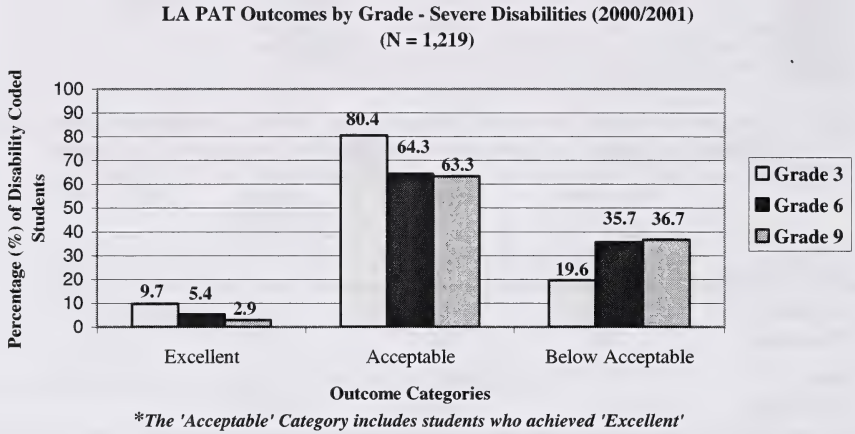
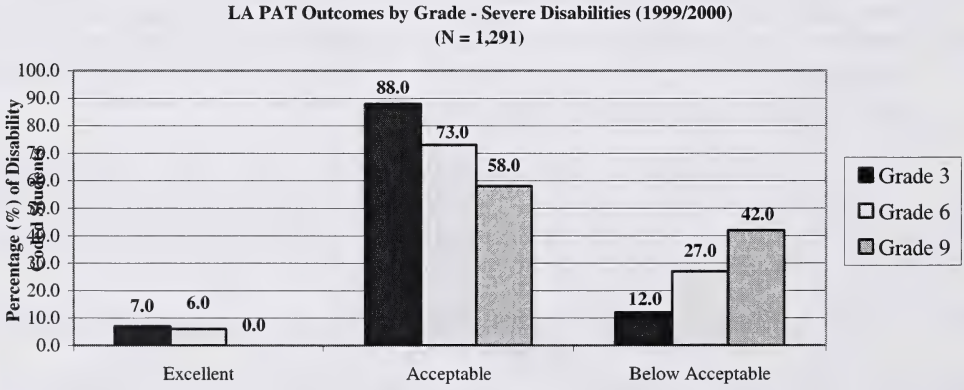


Figure 6 shows the 1999/2000 Language Arts PAT outcomes by grade level for students with severe disabilities. These same results reported in the 1999/2000 MIRS report demonstrate that the proportion of students comprising each of the outcome categories has remained relatively the same over the past year. The total number of students with severe disabilities who wrote the Language Arts PAT in the 1999/2000 school year was 1,291.

Figure 6



Gifted and Talented Students and those with Mild or Moderate Disabling Conditions

Funding for gifted and talented students as well as those with mild/moderate disabling conditions is included in the Basic Instruction funding provided to school boards, charter schools and private schools.

Total Enrollment by Jurisdictions

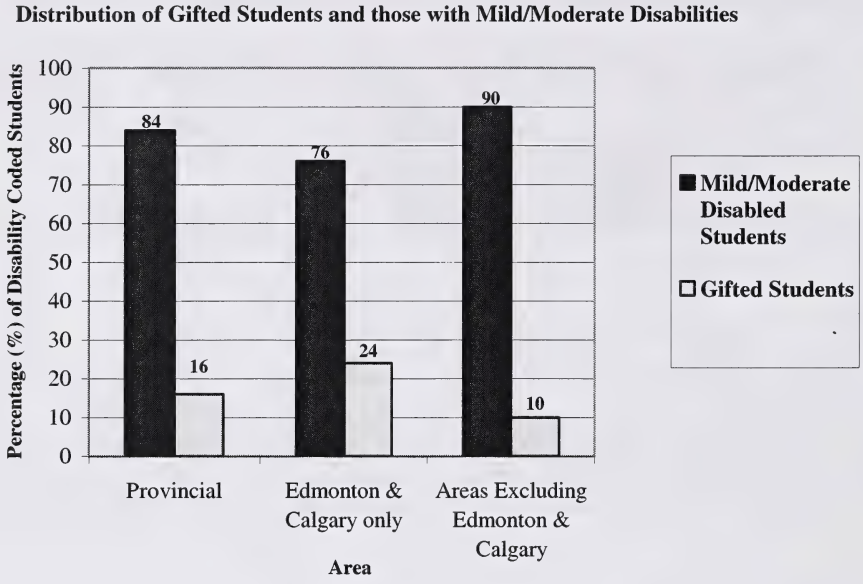
Descriptive statistics for the total number of students classified as being gifted and talented or having mild/moderate disabling conditions as well as break downs of each category are displayed in Table 10.

Table 10. Total Number of Gifted Students and those with Mild/Moderate Disabilities for Grades 1-12

	Total Number of Gifted Students and Students with Mild/moderate disabilities	Total Number of Students with Mild/moderate disabilities	Percentage of Students with Mild/moderate disabilities	Number of Gifted Students	Percentage of Gifted Students
Mean	1,016.6	856.0	90.7	174.7	10.2
Median	630.0	566.5	92.9	46.0	7.7
Std. Deviation	1,789.4	1,377.0	9.0	543.2	8.9
Minimum	30.0	27.0	61.5	1.0	0.2
Maximum	10,247.0	9,167.0	100.0	3,941.0	38.0
Sum	63,027.0	53,071.0	84.0	9,956.0	16.0

The figure outlined below demonstrates that the Edmonton and Calgary jurisdictions have a much higher percentage of students designated as gifted (24%) in comparison to the school jurisdictions lying outside of these two cities (10%). A number of the jurisdictions not within Edmonton and Calgary reported having no students classified as being gifted. This is a possible source of error in the reported data, and points to the need for further study. It is not surprising, therefore, that the data shows that the metropolitan jurisdictions have a lower proportion of students coded with mild/moderate disabilities (76%) than the jurisdictions situated outside of these two city centres (90%).

Figure 7



Codes for Students with Mild/Moderate Disabling Conditions

The various types of student disability codes used to classify students with mild/moderate disabling conditions or giftedness include the following:

Code 51 = Mild Mental Disability
Code 52 = Moderate Mental Disability
Code 53 = Emotional/Behavioural Disability
Code 54 = Learning Disability
Code 55 = Hearing Disability
Code 56 = Visual Disability
Code 57 = Communication Disability
Code 58 = Physical/Medical Disability
Code 59 = Multiple Disability
Code 80 = Gifted and Talented

Refer to the following website for a review of the definitions pertaining to each of the above-listed disability codes: http://www.learning.gov.ab.ca/k_12/specialneeds/SpecialEd_def.pdf

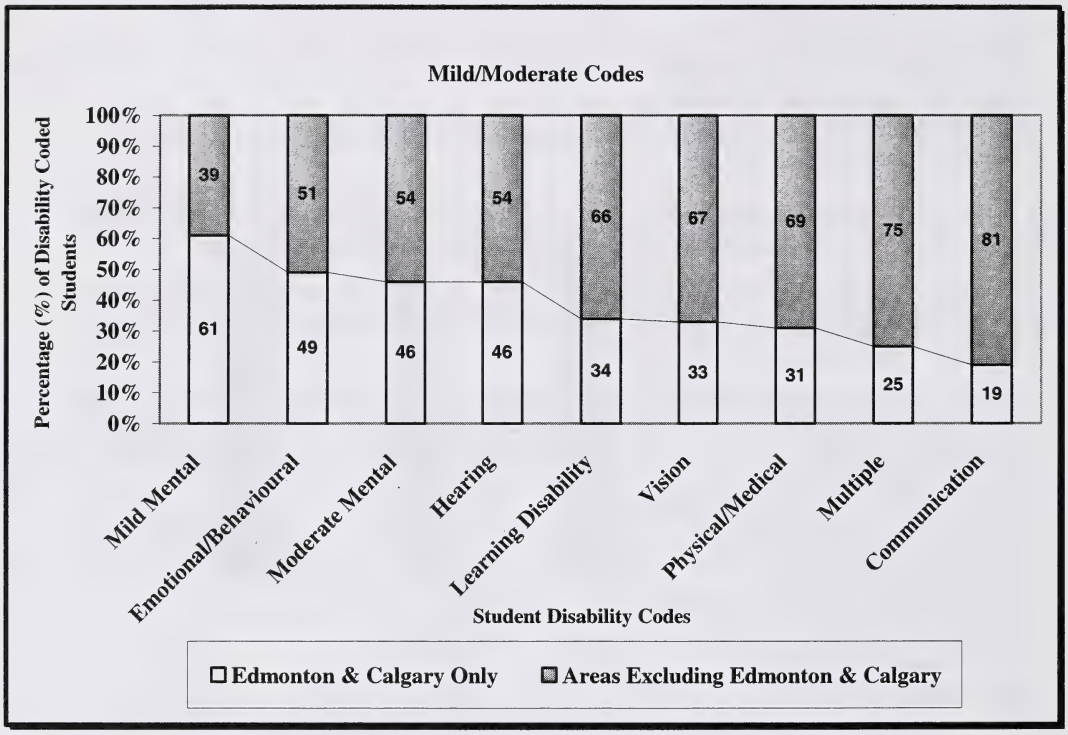
The results displayed in the following table show that more than half of all students coded as having a mild/moderate disabling condition (61.4%) are classified as having a learning disability (code 54).

Table 11. Total Number of Students with a Mild/Moderate Disability by Disability Code

Student Disability Codes	Number of Students	Percent Total
Learning Disability (code 54)	32,603.0	61.4
Emotional/Behavioural Disability (code 53)	5,945.0	11.2
Communication Disability (code 57)	5,618.0	10.6
Mild Mental Disability (code 51)	5,401.0	10.2
Multiple Disability (code 59)	1,286.0	2.4
Moderate Mental Disability (code 52)	898.0	1.7
Physical/Medical Disability (code 58)	819.0	1.5
Hearing Disability (code 55)	412.0	0.8
Visual Disability (code 56)	89.0	0.2
Total	**53,071**	100%

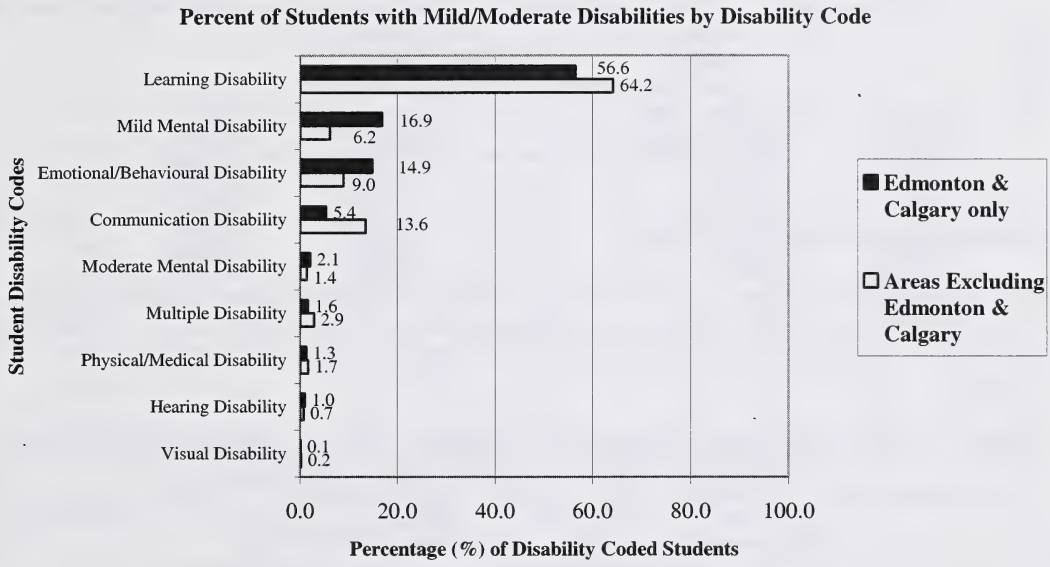
Figure 8 presents the relative percentages of students from the Edmonton and Calgary areas and the jurisdictions situated outside of these metropolitan centres within the student disability codes. For example, 61% of students with mild mental disabilities reside in the metropolitan centers, while 39% are from jurisdictions outside of Edmonton and Calgary.

Figure 8 - Percent of Students by Mild/Moderate Disability Code by Geographic Location



The following figure presents the percent of students by disability code within each of the two groups of jurisdictions. For example, of all students with a mild/moderate disability in the metropolitan areas, 56.6% have a learning disability. Similar to the proportions noted in Figure 7, this data also demonstrates notable variations by disability code, although if graded by frequency the rankings are relatively similar, but demonstrate some variation.

Figure 9



Staff Costs

Data outlining the various expenses associated with educating students with mild/moderate disabilities as well as those students identified as being gifted are summarized in Table 12. Over the 2000/2001 school year, a total of $159,142,966 was spent across the 62 jurisdictions.

Table 12. Total Staff Expenses for Gifted Students and those with Mild/Moderate Disabilities within Grades 1-12

	Expenses Certificated Staff	Expenses Non-Certificated Staff	Total Expenses
Mean	1,778,535.4	863,576.9	2,566,822.0
Median	772,893.8	328,946.5	1,063,849.3
Std. Deviation	3,539,109.0	1,607,716.0	5,089,519.0
Minimum	12,250.0	6,897.0	26,712.0
Maximum	22,220,557.0	8,932,949.0	28,710,414.0
Sum	103,154,945.0	48,360,303.0	159,142,966.0

The following table provides information on a cost per student basis for educating gifted students and those with mild/moderate disabilities within the province of Alberta.

Table 13. Provincial Costs per Gifted Student and those with Mild/Moderate Disabilities

	Provincial Costs
Mean	2,270.6
Median	1,963.4
Std. Deviation	1,644.8
Minimum	193.3
Maximum	11,238.2

Total Full-Time Equivalents (FTEs)

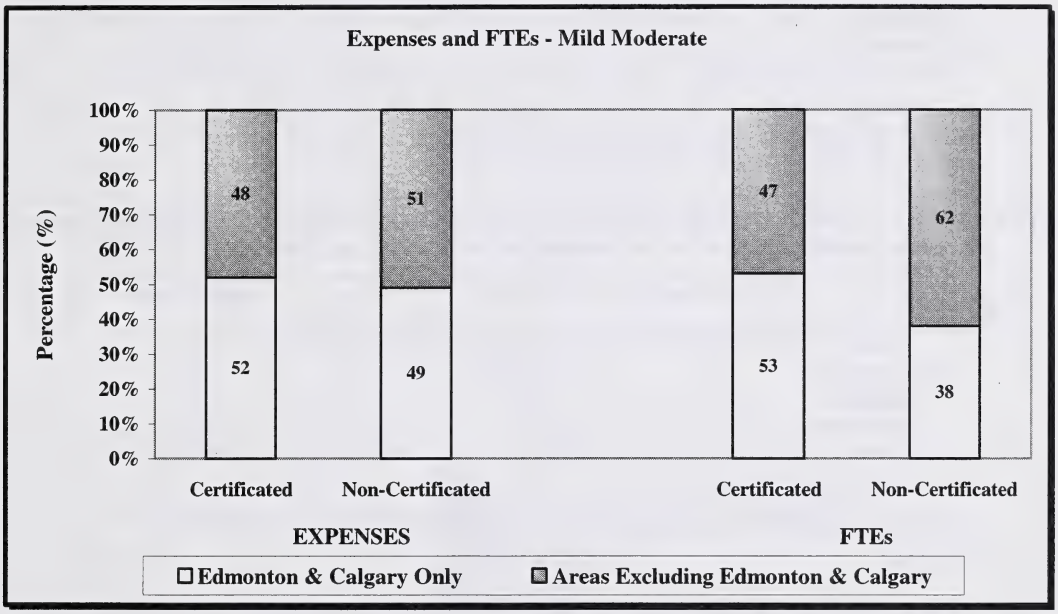
The overall distribution of certificated and non-certificated staff for gifted students and those programs directed toward students with mild/moderate disabling conditions is displayed in Table 14. Overall, the percentage of certificated staff (49.6%) is quite similar to the percentage of non-certificated staff (50.4%).

Table 14. Total Percentages and Numbers of Certificated and Non-Certificated Staff for Gifted Students and those with Mild/Moderate Disabilities

	Percent Certificated	Percent Non-Certificated	Number Certificated	Number Non-Certificated	Total FTEs
Mean	50.7	57.2	28.7	29.6	54.0
Median	48.1	55.4	12.7	14.5	25.2
Std. Deviation	23.5	21.5	58.3	42.3	94.3
Minimum	1.6	3.9	0.0	1.0	1.0
Maximum	100.0	100.0	345.0	194.0	514.0
Overall	49.6	50.4	1,662.0	1,687.0	3,348.8

Figure 10 presents the metropolitan and other jurisdiction expenses and FTEs used to serve students with mild/ moderate disabling conditions. Although there is an equal balance in expenses between the Edmonton and Calgary jurisdictions and those lying outside of these city centres, there is a difference in distribution of non-certificated staff (FTEs) between the metropolitan areas (38%) and the jurisdictions outside of Edmonton and Calgary (62%).

Figure 10 - Percent of Expenses and FTE's by Geographic Location for Students with Mild/Moderate Disabilities



Achievement Results for Students with Mild/Moderate Disabilities

Achievement results for students with mild/moderate disabilities were analyzed with Provincial Achievement Test (PAT) results in Language Arts, based on jurisdiction-level aggregate average Provincial Achievement Test scores.

The following tables provide information on the number and percentage of funded students with mild/moderate disabilities who wrote and scored excellent, acceptable, and below acceptable on the Language Arts Provincial Achievement Test (PAT) for grades 3, 6, and 9.

The results in Tables 15, 16, and 17 show that a total of 4,129 Grade 3 students, 4,347 Grade 6 students and 3,029 Grade 9 students with mild/moderate disabilities wrote the Language Arts section of the PAT. This represents a total of 11,505 students with a mild/moderate disabling condition that wrote the PAT's in 2000-01.

The participation rates for students with mild/moderate disabilities writing the Grade 3, 6 and 9 Language Arts PAT in 2000/2001 was found to be 84.7%, 82.3%, and 68.5% respectively[2]. It should be noted the participation rates are based on both funded and non-funded students with severe disabilities writing the LA PAT.

[2] Based on information provided by the Learner Assessment Branch

Table 15. Number and Percentage of Grade 3 Students with Mild/Moderate Disabilities Scoring Excellent, Acceptable, and Below Acceptable on the Language Arts PAT (N = 4,129)

	Excellent	Acceptable	Below Acceptable	Total Assessed
Mean	6.3	51.3	11.3	66.6
Std. Deviation	8.9	60.2	13.9	79.3
Minimum	1.0	1.0	1.0	1.0
Maximum	56.0	401.0	86.0	543.0
Sum	277.0	3183.0	669.0	4,129.0
Percentage	**6.7**	**83.8***	**16.2**	

**The 'Acceptable' Category includes students who achieved 'Excellent'*

Table 16. Number and Percentage of Grade 6 Students with Mild/Moderate Disabilities Scoring Excellent, Acceptable, and Below Acceptable on the Language Arts PAT (N = 4,347)

	Excellent	Acceptable	Below Acceptable	Total Assessed
Mean	3.0	42.2	27.4	71.3
Std. Deviation	5.5	63.7	44.9	111.0
Minimum	1.0	1.0	1.0	1.0
Maximum	33.0	440.0	291.0	764.0
Sum	105.0	2,573.0	1,669.0	4,347.0
Percentage	**2.4**	**61.6***	**38.4**	

**The 'Acceptable' Category includes students who achieved 'Excellent'*

Table 17. Number and Percentage of Grade 9 Students with Mild/Moderate Disabilities Scoring Excellent, Acceptable, and Below Acceptable on the Language Arts PAT (N = 3,029)

	Excellent	Acceptable	Below Acceptable	Total Assessed
Mean	2.3	31.5	18.3	49.7
Std. Deviation	2.6	50.7	32.0	81.6
Minimum	1.0	1.0	1.0	1.0
Maximum	11.0	359.0	183.0	544.0
Sum	41.0	1,889.0	1,099.0	3,029.0
Percentage	**1.4**	**63.7***	**36.3**	

**The 'Acceptable' Category includes students who achieved 'Excellent'*

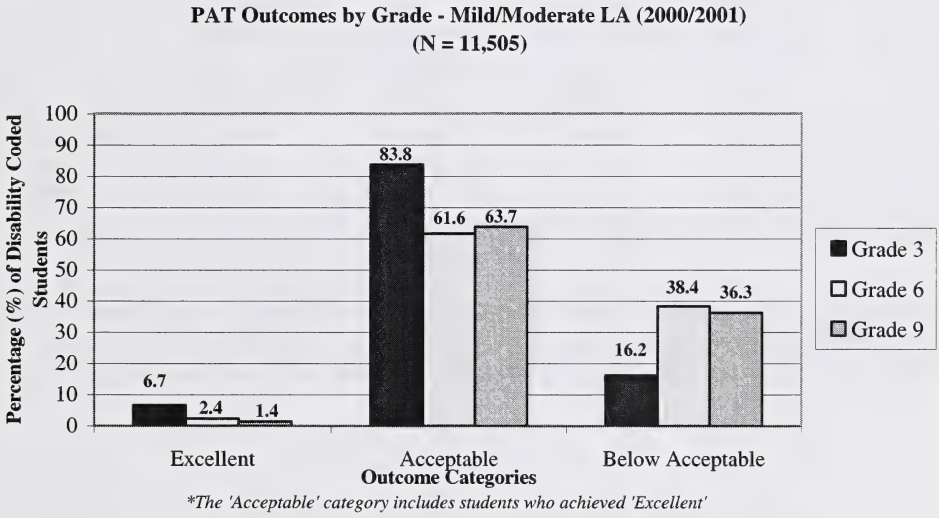
The average Language Arts PAT scores for students diagnosed with mild/moderate disabilities in grades 3, 6, and 9 are presented in Table 18. The results show that there is a small decline in the average marks achieved from Grade 3 to Grade 9, however, between grade comparisons are not meaningful in the absence of test equated statistics. The data is presented here for within grade analysis by school jurisdiction staff.

Table 18. Average Language Arts PAT 2000/2001 Scores for Students with Mild/Moderate Disabilities in Grades 3, 6, & 9

Marks	Grade 3	Grade 6	Grade 9
Mean	63.0	55.2	55.0
Std. Deviation	5.2	4.3	4.1
Minimum	45.0	41.0	41.0
Maximum	72.0	67.0	65.0

The following figure shows the proportion of students with mild/moderate disabilities scoring excellent, acceptable, and below acceptable on the 2000/2001 PATs within grades 3, 6, and 9. The results show that there are a relatively high proportion of grade six and nine students scoring within the 'Below Acceptable' category (38.4% and 36.3%, respectively) compared to grade 3 students (16.2%). A very small percentage of the grade 9 students score within the 'Excellent' category (1.4%). There is relatively little variation, however, in the notable proportion of students scoring 'Acceptable' across the grade six and nine levels. The total number of grade 3, 6 and 9 students with mild/moderate disabilities who wrote the Language Arts PAT during the 2000/2001 school year was 11,505.

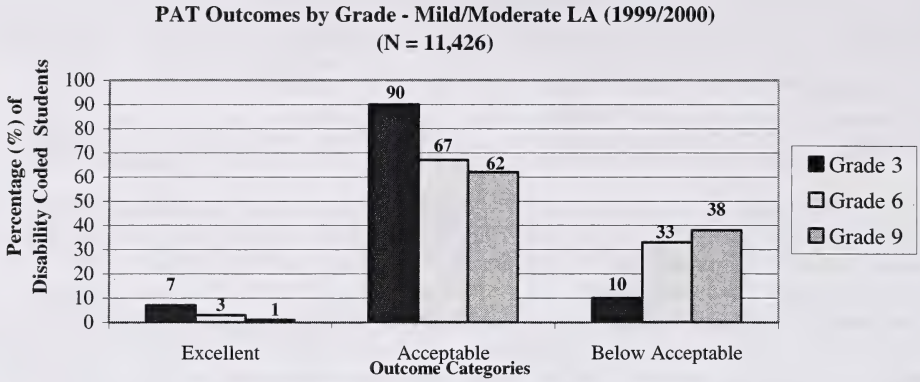
Figure 11



**The 'Acceptable' category includes students who achieved 'Excellent'*

Figure 12 shows the 1999/2000 Language Arts PAT outcomes by grade level for students with mild/moderate disabilities. These same results reported in the 1999/2000 MIRS report show that the proportion of students comprising each of the outcome categories has remained relatively the same over the past year. The total number of students with mild/moderate disabilities who wrote the Language Arts PAT during the 1999/2000 school year was 11,426.

Figure 12



**The 'Acceptable' category includes students who achieved 'Excellent'*

English as a Second Language Funding

The purpose of the English as a Second Language (ESL) funding is to assist Canadian-born and non-Canadian born ESL students in Grades 1-12 in meeting grade level standards in English Language Arts.

The following analyses pertain to ESL funding and examine a number of topics including funded student enrolment, costs, and achievement results for the 2000/2001 school year.

Total Enrolment

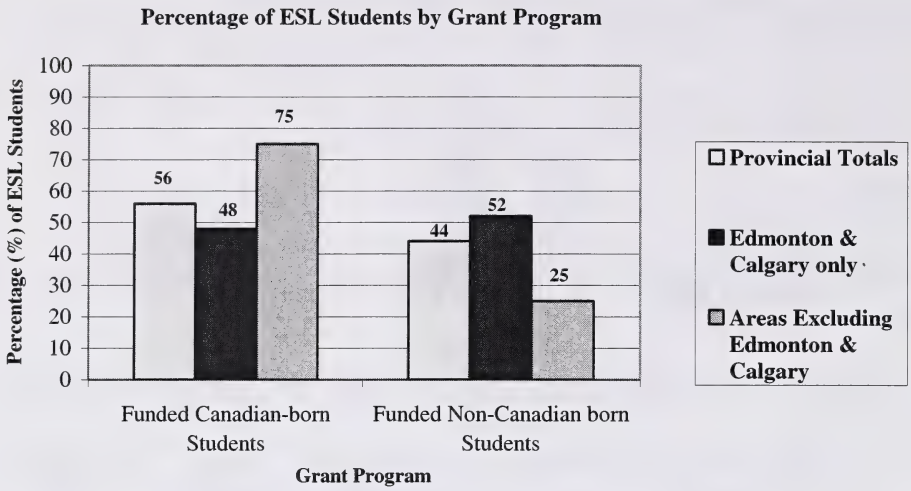
The total number of students and ESL students enrolled in the public and separate school boards in Alberta is detailed in Table 19. There were a total of 19,905 funded ESL students enrolled in Grades 1-12 province wide.

Table 19. Total Number of Funded Students and Total Number of Funded ESL Students for Grades 1-12

	Total Number of Funded Students	Total Number of Non-Canadian born Students	Total Number of Canadian-born Students	Total Number of Funded ESL Students	Percentage of ESL Students
Mean	7,956.1	148.6	206.2	326.3	4.9
Median	4,132.5	20.0	59.5	75.0	1.8
Std. Deviation	15,162.6	578.8	588.2	1,119.4	9.3
Minimum	225.0	1.0	1.0	3.0	0.1
Maximum	91,421.0	4,160.0	4,191.0	8,351.0	51.7
Sum	493,277.0	8,770.0	11,135.0	19,905.0	4.0

The following figure shows the overall proportion of Canadian-born students to non-Canadian born students. The jurisdictions lying outside of Edmonton and Calgary have a considerably higher percentage of Canadian-born ESL students (75%) than those jurisdictions within Edmonton and Calgary (48%).

Figure 13



Program Costs and Cost per Student

Data detailing the various expenses associated with ESL students are defined in Table 20. Overall, the expenses incurred for ESL students in the 62 jurisdictions across the province were $14,988,279. The average cost incurred per ESL student within the province was approximately $790. The cost associated per ESL student is the ratio between total expenses and the total number of ESL students.

Table 20. Total ESL Expenses and Cost per ESL Student within the Province

	Provincial ESL Expenses	Provincial Cost per ESL Student
Mean	245,709.5	789.9
Median	59,287.0	697.5
Std. Deviation	806,043.0	344.9
Minimum	1,658.0	79.0
Maximum	5,948,475.0	2,643.8
Sum	14,988,279.0	

Achievement Results for ESL Students

Achievement results for ESL students were analyzed with from Provincial Achievement Test results in Language Arts.

The tables listed below provide jurisdiction-level information on the number and percentages of ESL students who scored excellent, acceptable, and below acceptable on the PATs for grades 3, 6, and 9. The results demonstrate that the percentage of ESL students within Grade 9 who scored 'Excellent' on the PATs decreased in comparison to those ESL students who scored 'Excellent' in Grades 3 and 6.

The participation rates for funded ESL students writing the Grade 3, 6 and 9 Language Arts PAT in 2000/2001 was found to be 76.7%, 72.1%, and 67.3% respectively[3].

[3] Based on information provided by the Learner Assessment Branch

Table 21. Number and Percentage of Grade 3 ESL Students Scoring Excellent, Acceptable, and Below Acceptable on the PATs (N = 2,083)

	Excellent	Acceptable	Below Acceptable	Total Assessed
Mean	6.0	26.3	11.6	35.9
Std. Deviation	13.6	83.5	33.2	118.9
Minimum	1.0	1.0	1.0	1.0
Maximum	63.0	590.0	214.0	867.0
Sum	126.0	1448.0	509.0	2,083.0
Percentage	**6.0**	**75.5***	**24.5**	

**The 'Acceptable' Category includes students who achieved 'Excellent'*

Table 22. Number and Percentage of Grade 6 ESL Students Scoring Excellent, Acceptable, and Below Acceptable on the PATs (N = 1,424)

	Excellent	Acceptable	Below Acceptable	Total Assessed
Mean	3.7	16.7	12.9	25.4
Std. Deviation	7.5	54.8	34.5	86.1
Minimum	1.0	1.0	1.0	1.0
Maximum	37.0	396.0	202.0	635.0
Sum	84.0	903.0	437.0	1,424.0
Percentage	**5.9**	**69.3***	**30.7**	

**The 'Acceptable' Category includes students who achieved 'Excellent'*

Table 23. Number and Percentage of Grade 9 ESL Students Scoring Excellent, Acceptable, and Below Acceptable on the PATs (N = 658)

	Excellent	Acceptable	Below Acceptable	Total Assessed
Mean	3.0	10.0	7.8	13.7
Std. Deviation	3.2	31.0	17.0	43.7
Minimum	1.0	1.0	1.0	1.0
Maximum	10.0	196.0	84.0	290.0
Sum	21.0	418.0	219.0	658.0
Percentage	**3.2**	**66.7***	**33.3**	

**The 'Acceptable' Category includes students who achieved 'Excellent'*

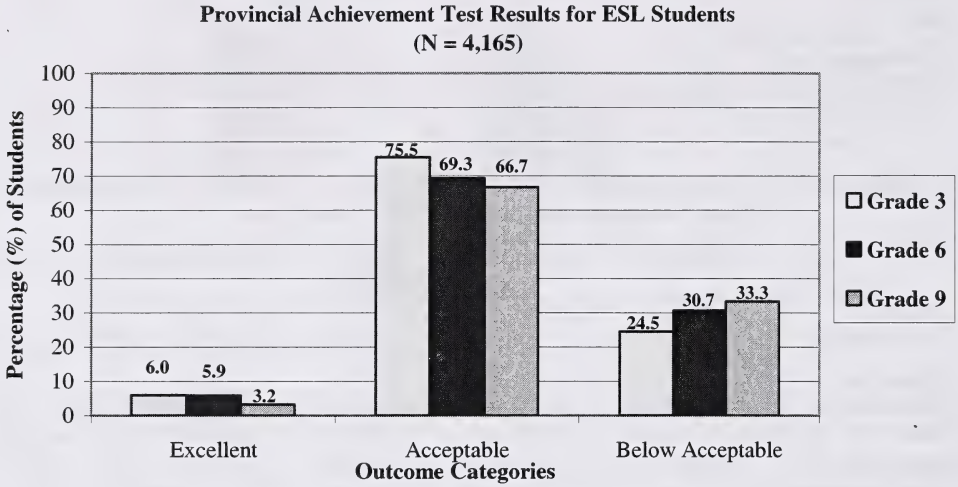
The following table displays the average PAT 2000/2001 marks for ESL students in grades 3, 6, and 9. In the absence of test equated scores, between grade comparisons are less meaningful than within grade analysis by school jurisdiction staff.

Table 24. Average PAT 2000/2001 Marks for ESL Students in Grades 3, 6, & 9

Marks	Grade 3	Grade 6	Grade 9
Mean	61.1	61.6	56.8
Std. Deviation	7.6	8.9	9.0
Minimum	32.0	42.0	27.0
Maximum	77.0	86.0	76.0

The figure below displays the proportion of ESL students scoring excellent, acceptable, and below acceptable on the PATs within grades 3, 6, and 9. The results show that there are a relatively small proportion of ESL students scoring within the 'Excellent' category at the Grade 3, 6, and 9 levels. In contrast, a high proportion of these students are scoring within the "Below Acceptable" category for each of these same grade levels. Very little variation was identified in the notable proportion of students scoring 'Acceptable' across the three grade levels.

Figure 14



**The 'Acceptable' category includes students who achieved 'Excellent'*

Early Literacy Initiative

The Early Literacy Initiative (ELI) was established in 1998 and served to provide approximately $57 million in total across the following school years: 1998/99, 1999/00, and 2000/01. The program was created in order to support the development of early literacy programs by school authorities for funded students from Kindergarten to Grade 2.

Total Enrolment

Descriptive statistics for the number of students enrolled in the ELI program is aggregated at the jurisdiction level (extending from ECS to Grade 2) in the 1999/2000 school year and the related number of ELI students writing the 2000-01 Provincial Achievement Test in Language Arts are summarized in Table 25. A total of five school jurisdictions reported their ELI expenses, but did not report a student enrolment figure. In addition, two school jurisdictions reported an ELI student enrolment figure, but did not report their expenses for this program. Due to this occurrence, separate analyses for the jurisdictions within and outside of Edmonton and Calgary were not performed.

During the 1999/2000 school year, a total of 9,970 students were reported to be enrolled in the ELI program. The Grade 3 former ELI student enrolment number (4,068) was obtained by examining the number of these students who wrote the Language Arts section of the Provincial Achievement Test (PAT) during the 2000/2001 school year. Since these Grade 3 ELI students were matched according to their student identification numbers, the PAT results from the 2000/2001 data can be analyzed for the ELI cohort.

Table 25. Provincial ELI Enrolment in 1999/2000 & Number of Grade 3 ELI Students Writing the LA PAT in 2000/2001

	Provincial ELI Enrolment in 1999/00 (ECS – Grade 2)	Number of Grade 3 ELI Students Writing the LA PATs in 2000/01
Mean	174.9	71.4
Std. Deviation	215.2	103.7
Minimum	2.0	1.0
Maximum	1,332.0	733.0
Sum	9,970.0	4,068.0

Costs and Expenses per ELI Student

The following table provides information on the enrolment figures for ELI students and the number of Grade 3 students who wrote the Language Arts section of the PATs. The table also provides information on the total ELI expenses for the 1999/2000 school year and the costs incurred per ELI student during this same school year. The results displayed in Table 26 show that the range of jurisdictional level ELI expenses over the 1999/2000 school year was quite substantial. The minimum expense was that of $11,842, while the highest amount claimed was $3,203,914. The average cost per ELI student in the 1999/2000 school year was found to be $2,671.50.

Table 26. Expenses and ELI Enrolment Numbers for the ECS - Grade 2 Program

	Provincial ELI Enrolment in 1999/00 (ECS – Grade 2) (N = 57)	Number of Grade 3 ELI Students Writing the LA PAT in 2000/01	Provincial ELI Expenses in 1999/00 (N = 60)	Cost per ELI Student in 1999/00 (N = 55)
Mean	174.9	71.4	299,074.0	2,671.50
Std. Deviation	215.2	103.7	536,409.0	4,117.73
Minimum	2.0	1.0	11,842.0	409.23
Maximum	1,332.0	733.0	3,203,914.0	23,503.76
Sum	9,970.0	4,068.0	17,944,438.0	

Achievement Results for ELI Students

Overall, a total of 4,068 Grade 3 students coded ELI in grade 2 wrote the Language Arts section of the PAT in the 2000/2001 school year. The table listed below provides information on the number and percentage of these Grade 3 ELI students scoring 'Excellent' 'Acceptable' and 'Below Acceptable' on the Language Arts PAT.

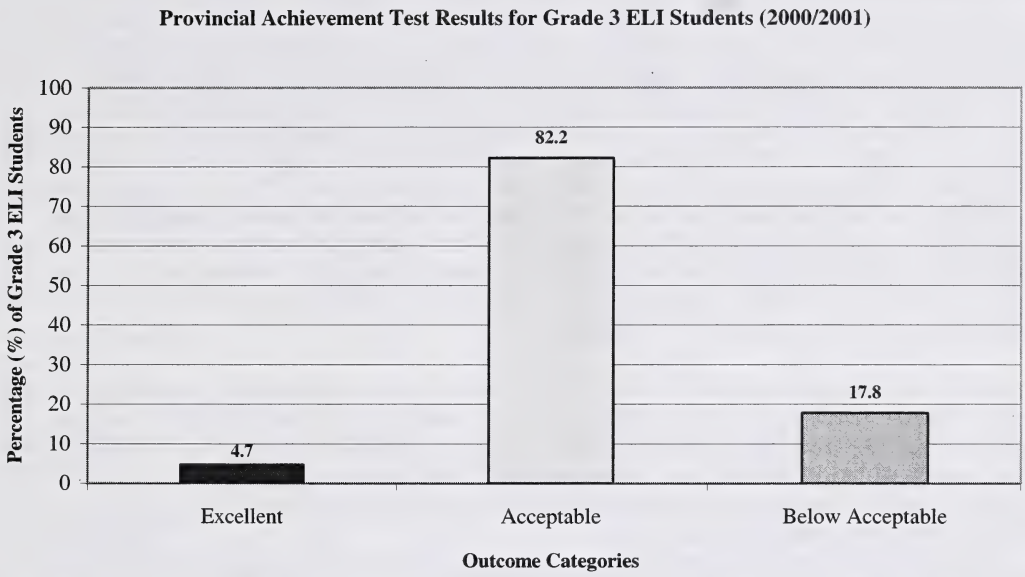
The results show that almost 18 percent of Grade 3 ELI students scored within the 'Unacceptable' category of the Language Arts section of the PAT, while 82.2 percent of these students scored in the 'Acceptable' category.

Table 27. Number of Grade 3 ELI Students Scoring Excellent, Acceptable, and Below Acceptable on the Language Arts PAT

	Excellent	Acceptable	Below Acceptable	Total Assessed	Average Mark Obtained
Mean	4.4	55.3	14.0	71.4	63.3
Std. Deviation	4.6	77.4	24.9	103.7	5.1
Minimum	1.0	1.0	1.0	1.0	46.4
Maximum	24.0	552.0	157.0	733.0	83.0
Sum	190.0	3,152.0	726.0	4,068.0	
Percentage	**4.7**	**82.2**	**17.8**		

**The 'Acceptable' Category includes students who achieved 'Excellent'*

Figure 15



**The 'Acceptable' Category includes students who achieved 'Excellent'*

The 2000-01 provincial achievement tests marked the first time that students served under the ELI program wrote these tests. Since trend data is not yet available, it is useful to compare the results for the percent of students achieving the acceptable standard to the overall provincial grade three results for Language Arts (89.4%)[4] and to the results for students with mild/moderate disabilities (83.8%). In comparison, the 82.2% of Grade 3 ELI students scoring within the 'Acceptable' category on the 2000/01 PAT tends to suggest that there is room for further improvement.

No statistically significant relationship was identified between the cost incurred per ELI student during the 1999/2000 school year and the average LA PAT marks attained by the Grade 3 ELI students in 2000/2001 ($r = -.15$).

[4] Information retrieved from the following website:
http://www.learning.gov.ab.ca/k_12/testing/results_2001/ach_multiyr.asp

Technology Integration Funding

The primary objective of the Technology Integration Funding (TIF) program is to place as much computer technology as possible into Alberta classrooms in order to enhance student learning. School jurisdictions make decisions about investments in technology as part of overall financial planning for their operations. Sources for investment in technology include funding for Basic Instruction, Plant Operations and Maintenance, System Administration, and the Alberta Initiative for School Improvement. Technology Integration Funding (TIF) is an additional supplemental earmarked source of funding, which may be used toward the purchase of technology such as computers and computer upgrades, instructional software and networking components in schools. Government has provided TIF on an annual basis since the 1996/1997 school year to improve the level of equity and access to computer technology among schools. Funding of $125 million in TIF has been distributed to date. $60 million of these funds were provided in the 2000/2001 school year to be spent over the next three years to allow better long-term planning to meet the growing technology needs of students. The TIF data for the following analyses was retrieved from the MIRS Schedule 12 (2000/2001).

The table below shows that there are a total of 84,391 modern computers across 60[5] jurisdictions reporting data for this analysis. The overall student-to-computer ratio within the province was reported to be 6.3:1. Across the provincial jurisdictions, the Technology Integration expenditures in 2000/2001 ranged from $8,412 to $6,535,086 with an average of $625,000 being spent per jurisdiction. The provincial expenses incurred on a per student basis ranged from approximately $8 to $312 with an average cost of $80.60 being spent per student.

Table 28. Total Number of Computers, Students, Student-to-Modern* Computer Ratio, Total Expenses, and Provincial Costs per Student

	Number of Modern Computers Purchased/Upgraded	Total Number of Modern Computers	Number of Students	Student-to-Modern Computer Ratio	Total Expenses	Provincial Costs per Student
Mean	351.9	1,406.5	9,104.7	N/A	625,000.1	80.6
Std. Deviation	621.6	2,015.2	16,920.1	1.5	1,063,458.3	48.1
Minimum	0.0	64.0	269.0	2.7	8,412.0	8.2
Maximum	3,945.0	11,483.0	101,001.0	9.4	6,535,086.3	312.3
Overall	21,112.0	84,391.0	546,282.0[6]	6.3	37,500,004.0	

*Modern classroom computers are computers less than five years old from the date of manufacture, or upgraded after August 1996

Table 29. Lowest to Highest Student-to- Modern Computer Ratio in the Province

	Lowest Student-to-Modern Computer Ratio	Highest Student-to-Modern Computer Ratio
Mean	3.0	14.5
Std. Deviation	1.8	16.0
Minimum	0.5	1.9
Maximum	13.2	84.1[7]

[5] Two school jurisdictions were not incorporated at the time of this analysis
[6] Enrolment number provided via the TIF Schedules
[7] One outlier ratio of 400:1 was eliminated from the analysis

TIF Expenditures

The following table presents the TIF data from 1996-1998, as well as the data extending from 1998/1999 to 2000/2001. The results show that the school boards spent a total of $37.5 million dollars on Total Technology Integration expenditures between September 1, 2000 and August 31, 2001. This resulted in 21,112 computers being purchased/modernized. In total, there were 84,391 modern computers as of August 31, 2001 in Alberta schools. The overall student-to-modern classroom computer ratio was reported to be 6.7:1 in 1999/2000 and 6.3:1 in 2000/2001.

Table 30. Technology Integration Fund Comparisons – 1996-98, 1998/99, 1999/00 and 2000/01

	1996-1998	1998/1999	1999/2000	2000/2001
Expenditures	84,054,000	49,000,000	35,367,000	37,500,004
Number of Computers Purchased or Modernized	34,234.0	21,882.0	17,729.0	21,112.0
Total Modern Computers	57,315.0	70,667.0	81,527.0	84,391.0
Student to Modern Computer Ratio	8.67:1	7.84:1	6.71:1	6.3:1

Note: the first MIR TIF Schedule collected data for two fiscal years, 1996-97 and 1997-98; the 1998-99 period was for April 1, 1998 to August 31, 1999; the 1999-2000 period was from September 1, 1999 to August 31, 2000; and the 2000-01 period was from September 1, 2000 to August 31, 2001.

Review of total technology expenditures in relationship to TIF grants amounts revealed that for the TIF 2000-01 reporting period, 28 jurisdictions expended additional funds on technology integration. The average over-expenditure amount was $182, 893 and ranged from $431 to $1,473,364. In comparison, 32 jurisdictions spent less than the TIF grant by an average amount of $282,922 and a range of $874 to $3,005,641. This one-year snap shot of TIF grant spending patterns, however, would be clearer when analyzed over a longer term (i.e. trend data) and in relationship to total cost of ownership (TCO) allocations – a focus for future reports. The TIF eligible cost categories have been revised to include all categories within the TCO model beginning in the 2002-03 school year. – Refer to the following web-link **http://www.learning.gov.ab.ca/funding/fundingmanual/Manual_PDF/1.12.pdf**

Bibliothèque nationale du Canada
3 3286 52548011 3